

REMARKS

Initially, Applicants would like to express appreciation to the Examiner for the detailed Official Action provided.

Upon entry of the above amendment, claims 9 and 12 will have been amended, and claims 10 and 11 will have been canceled. Accordingly, claims 1-9, 12-14, and 16-20 are currently pending. Claims 1-8 and 17-20 stand withdrawn from consideration by the Examiner. Applicants respectfully request reconsideration of the outstanding rejection and allowance of claims 9, 12-14, and 16 in the present application. Such action is respectfully requested and is now believed to be appropriate and proper.

Claims 9-14 and 16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over BOLDUAN et al. (U.S. Patent Publication No. 2002/0178764) in view of BROKER (U.S. Patent Publication No. 2003/0037382).

Although Applicants do not necessarily agree with the Examiner's rejection of claim 9 on this ground, nevertheless, Applicants have amended independent claim 9 to clearly obviate the above noted ground of rejection in order to expedite prosecution of the present application. In this regard, Applicants note that BOLDUAN et al. and BROKER fail to teach or suggest the subject matter claimed in amended claim 9. Claim 9 has been amended to include the subject matter of dependent claims 10 and 11, which have been canceled by this amendment. In particular, claim 9, as amended, sets forth a method of controlling wash water circulation for a washing machine including, inter alia, "supplying wash water into a tub; circulating wash water supplied into a tub along a circulation channel by operating a pump when wash water is supplied up to a prescribed wash water level; measuring the discharging pressure of the pump while the wash water

is circulated; further supplying water into the tub while stopping the operation of the pump for a prescribed period of time if the discharging pressure of the pump is less than a prescribed pressure, and operating the pump when the prescribed period of time lapses; measuring again the discharging pressure of the pump; and stopping again the operation of the pump for a prescribed period of time while supplying water into the tub".

This amendment is fully supported by the specification, including the claims and drawings, and no prohibited new matter has been added.

Applicants' claimed invention provides a method of controlling wash water circulation for a washing machine. According to the present invention, if it is determined that wash water in the tub is insufficient due to absorption by laundry during a washing/rinsing operation even though a sufficient amount of wash water has already been supplied into the tub, wash water may be supplied again into the tub, and the operation of the pump may be terminated for a prescribed amount of time. In this manner, the pump is driven only when a sufficient amount of wash water is contained in the tub. Therefore, the operating reliability of the pump for circulating wash water in the tub is improved, and the power consumption of the washing machine is reduced by temporarily terminating the operation of the pump upon detection of a shortage of wash water.

*Accordingly, the present invention includes temporarily terminating the operation of a circulation pump for a prescribed period of time upon detection of a shortage of wash water by a water level detection sensor.*

The present invention further includes, as set forth in amended claim 9, *operating the pump when the prescribed period of time of pump operation termination lapses; measuring again the discharging pressure of the pump; and terminating again the operation of the pump for a prescribed period of time while supplying water into the tub.*

The BOLDUAN et al. patent publication teaches an automatically controlled washing machine with overflow protection. As recognized by the Examiner, the BOLDUAN et al. publication does not teach shutting off the pump during lower water conditions or during the addition of water. Further, the BOLDUAN et al. publication does not teach shutting off the pump *for a prescribed period of time* upon detection of a shortage of wash water by a water level detection sensor, as set forth in claim 9. Further, BOLDUAN et al. fails to teach or suggest “operating the pump when the prescribed period of time lapses; measuring again the discharging pressure of the pump; and stopping again the operation of the pump for a prescribed period of time while supplying water into the tub”, as set forth in amended claim 9.

The Examiner states that the BOLDUAN et al. publication discloses “occasionally shutting off the pump to measure static pressure”. Further, the Examiner contends that it is well known in the art to shut off a pump during low water conditions to prevent cavitation as taught by BROKER, and the Examiner concludes that it would have been obvious to shut off the pump in low water conditions in the BOLDUAN et al. operation. Additionally, the Examiner further concludes that if the lower water condition is determined to longer exist, then the pump may be turned on again.

However, the BROKER patent publication fails to teach or suggest shutting off the pump *for a prescribed period of time* upon detection of a shortage of wash water by a water level detection sensor.

Further, the BROKER patent publication fails to teach or suggest *operating the pump when the prescribed period of time lapses; measuring again the discharging pressure of the pump; and stopping again the operation of the pump for a prescribed period of time while supplying water into the tub*, as set forth in amended claim 9.

In other words, even assuming, arguendo, that the BROKER publication teaches shutting off the pump in lower water conditions, and then turning the pump on again when the low water condition no longer exists, the BROKER publication still does not teach or suggest shutting off the pump for a prescribed period of time upon detection of a shortage of wash water by a water level detection sensor; operating the pump when a prescribed period of time lapses, and again stopping pump operation for a prescribed period of time. In fact, the BROKER publication does not teach or suggest any prescribed periods of time, measuring or setting any prescribed periods of time, or taking or stopping any action at all for a prescribed period of time. Accordingly, BROKER fails to teach or suggest *“supplying water into the tub while stopping the operation of the pump for a prescribed period of time if the discharging pressure of the pump is less than a prescribed pressure” and “operating the pump when the prescribed period of time lapses; measuring again the discharging pressure of the pump; and stopping again the operation of the pump for a prescribed period of time while supplying water into the tub”*, as set forth in claim 9, as amended. Therefore, the BROKER patent publication fails to cure the deficiencies of the BOLDUAN et al. patent

publication device, and even assuming, arguendo, that the teachings of BOLDUAN et al. and BROKER have been properly combined, Applicants' claimed method of controlling wash water circulation for a washing machine would not have resulted from the combined teachings thereof.

Further, there is nothing in the cited prior art that would lead one of ordinary skill in the art to make the modification suggested by the Examiner in the rejection of claim 9 under 35 U.S.C. § 103(a) over BOLDUAN et al. in view of BROKER. Thus, the only reason to combine the teachings of BOLDUAN et al. and BROKER results from a review of Applicants' disclosure and the application of impermissible hindsight. Accordingly, the rejection of claim 9 under 35 U.S.C. § 103(a) over BOLDUAN et al. in view of BROKER is improper for all the above reasons and withdrawal thereof is respectfully requested.

Applicants submit that dependent claims 12-14 and 16, which are at least patentable due to their dependency from claim 9 for the reasons noted above, recite additional features of the invention and are also separately patentable over the prior art of record based on the additionally recited features. In particular, Applicants submit that none of the cited prior art teaches or suggests: a method of controlling wash water circulation for washing machines including "further supplying wash water if the discharging pressure of the pump measured again is less than the prescribed pressure", as set forth in claim 12; a method of controlling wash water circulation for washing machines including "stopping supply of water if the discharging pressure of the pump measured again is not less than the prescribed pressure", as set forth in claim 13; a method of controlling wash water circulation for washing machines including "wherein

the pump is operated again after the prescribed period of time is passed”, as set forth in claim 14; and a method of controlling wash water circulation for washing machines including “wherein wash water is further supplied if the discharging pressure of the pump measured again is less than the prescribed pressure, and the pump is stopped again for the prescribed period of time”, as set forth in claim 16. Accordingly, claims 12-14 and 16 are each separately patentable for these additional reasons.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection, and an early indication of the allowance of claims 9, 12-14, and 16.

#### SUMMARY AND CONCLUSION

In view of the foregoing, it is submitted that the proposed amendment is proper and that none of the references of record, considered alone or in any proper combination thereof, anticipate or render obvious Applicants’ invention as recited in claims 9, 12-14, and 16. The applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Accordingly, consideration of the present amendment, reconsideration of the outstanding Official Action, and allowance of the present amendment and all of the claims therein are respectfully requested and now believed to be appropriate.

Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so.

Any amendments to the claims which have been made in this amendment, which do not narrow the scope of the claims, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered cosmetic in nature,

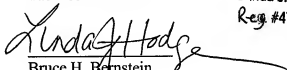
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and to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should there be any questions, the Examiner is invited to contact the undersigned at the below listed number.

Respectfully Submitted,  
Tae Hee LEE et al.

Linda J. Hodge  
Reg. #47,348

  
Bruce H. Bernstein  
Reg. No. 29,027

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GREENBLUM & BERNSTEIN, P.L.C.  
1950 Roland Clarke Place  
Reston, VA 20191  
(703) 716-1191